In 1963 he added these comments (*1*, p. 51).

> The two principal periods of 91 and 45½ years, 4 and 2 times 273 months, depress Lake Huron about 5 feet. . . . A drought of less magnitude in the supply area of Lake Huron has the single 273-month period. I predicted about 1938 its recurrence in the decade of 1950–1960. It proved very severe in [the] Southwest United States. . . . The two great droughts will probably begin about 1975 and 2020, respectively.

The 273-month period described by Abbot is twice the "sunspot cycle" of 11⅜ years and is associated with the magnetic cycle in sunspots first described by Hale (*2*, p. 2). The meteorological effects of solar-climatic cycles in west central North America have been discussed by Willett (*3*).

Since Abbot successfully predicted the drought of the 1950's, his prediction of a much more severe drought beginning in 1975 should be a matter of major concern. Verification of this prediction by means of other climatic indicators would be of great value.

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1. C. G. Abbot, *Smithson. Misc. Collect.* **146**, No. 3 (1963).
2. ———, *ibid.* **138**, No. 3 (1959).
3. H. C. Willett, *J. Atmos. Sci.* **22**, 120 (1965).

Dog Control

Bruce Max Feldmann (Editorial, 13 Sept., p. 903) mentions briefly the destruction of livestock and wildlife by dogs. This is by no means a local or minor matter. It discouraged sheep raising in New England after agriculture became unprofitable there. It prevails on the rangelands of the West and on the smaller farms of the Midwest. While wild predators generally kill for food, dog packs, whether feral or partly or wholly domestic, kill wantonly. More than two dozen of my sheep have been killed and left on an Ohio farm in a single night.

In New Mexico, outside the larger municipalities, the only laws that seem to apply to dogs are those requiring vaccination against rabies. Even this is difficult if not impossible to enforce. Rural dogs are seldom allowed in the house and are free to join roaming packs at night. These packs not only menace wild and domestic animals, but can be dangerous to unarmed humans.

Undoubtedly the coyote is often blamed for the damage done by dogs, although exact information is not available. This is a matter of concern to those who oppose the poisoning of the coyote and, in addition, has serious economic implications.

When I was working with a field class in ecology from Montana State University in 1947, we visited an area of fine grassland near West Yellowstone that was rapidly being invaded by sagebrush. This unpalatable plant was seeding itself on mounds of earth where rodents had destroyed the original grass. Inquiry revealed that the area had been cleared of coyotes by cyanide bombs. The diet of the coyote consists chiefly of rodents and insects; with the coyote gone, gophers and other rodents have a field day destroying the nutritious grasses that are the basis of the livestock industry.

Blame for the destruction of livestock and wildlife should be apportioned on solid information, not on opinion or sentiment, and policy should be shaped accordingly. There can be no doubt at present of the need for the humane and intelligent dog controls urged by Feldmann.

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Food shortages are a current reality in many areas of the earth, and the dietary component in shortest supply is protein (*1*). Simultaneously, as Feldmann reminds us, we are confronted with a major dog problem: too many dogs are uncontrolled, unwanted, and unowned (*2*). The measures proposed to control the dog problem—leash laws, population control, and public education—are expensive and ineffective. But with a more enlightened viewpoint, could we not consider excess dogs a significant nutritional resource that deserves our attention?

Western man seems to suffer a total mental block about the concept of eating dogs. However, in many cultures, dogs have been a traditional component of man's diet. In much of Oceania, dogs have been preferred over pork. Early British visitors to Hawaii and Tahiti described Polynesian methods of dressing and cooking dogs and compared the product favorably with English lamb (*3*).

Undoubtedly some will raise objections because, in Western culture, dogs have been sanctified as pets. Such objections are without merit. In the first place, as Feldmann and Beck (*2*) point out, stray and unowned dogs (which are not pets) are a major part of the dog problem. Second, many animals (chickens, ducks, rabbits, calves) fill dual roles as pets and as food. In my experience such pets have been every bit as delicious as their relatives with whom I have had no personal relationship. Third, could anyone bestow a higher honor on a pet than to make it part of oneself (*4*)?

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References and Notes

1. L. R. Brown, *Science* **180**, 373 (1973).
2. A. Beck, *The Ecology of Stray Dogs* (York, Baltimore, Md., 1973).
3. M. Titcomb and M. K. Pukui, *Dog and Man in the Ancient Pacific* (Special Publication 59, Bishop Museum, Honolulu, Hawaii, 1969).
4. I have nothing personal against dogs—some of my best friends have been dogs.

In addition to the urban dog problems described by Feldmann, the canines of New York City are creating a further ecological and economic dilemma. Copious amounts of dog urine are being sprayed on the lower trunks of sidewalk trees and eroding the cortical and suberized layers of juvenile bark. Before the advent of contemporary urban pollutants (including dog urine), urban trees persisted for 40 or 50 years; currently, their life expectancy is 10 to 20 years.

Attempts to alleviate urine damage by placing cylindrical metal shields around tree bases have increased the cost of planting a tree in New York City by $5 to $10. A newly perfected flanged shield designed to deflect and disperse dog urine will cost $15 to install and maintain. However, with current and predicted budgetary reductions, the New York City Parks, Recreation, and Cultural Affairs Administration may be prohibited from installing the new shield. To reinforce Feldmann's contention, one solution to the urine problem would be to reduce the total number and size of urban dogs.

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